

WHAT IS CLAIMED IS:

1. An image processing system comprising a combination of an image control unit and one or a plurality of image input/output units, wherein said image input/output unit and said image control unit are connected by communication means, said image control unit has first communication control means connected to said communication means, said image input/output unit has second communication control means connected to said communication means, and said system further includes control means for performing control so as to set predetermined communication conditions in said first and second communication control means at initialization, decide fixed packet length based upon mutually communicable packet lengths of packets exchanged via said communication means, set the decided fixed packet length in said first and second communication control means anew, and continue subsequent communication by DMA transfer in which a data string is divided into the set fixed packet lengths.
2. The system according to claim 1, wherein in a case where the data string is a variable-length message, said control means performs control in such a manner that a transmitting side adds information indicative of the end of a message onto a final packet when the variable-

length message is transmitted upon being divided into fixed-length packets, and a receiving side reproduces the original variable-length message after recognizing added-on final-packet information.

5     3. The system according to claim 1, wherein said  
control means includes first control means in said image  
control unit for controlling said first communication  
control means, and second control means in said image  
input/output unit for controlling said second  
10 communication control means.

4. The system according to claim 3, wherein the decision of the fixed packet length is made by said first control means.

5. The system according to claim 3, wherein the  
15 decision of the fixed packet length is made by said  
second control means.

6. The system according to claim 1, wherein the fixed packet length decided upon is whichever of the packet lengths of respective ones of said first and second communication control means is smaller than an upper-limit value.

7. The system according to claim 1, wherein an image reading unit is connected as the image input/output unit and the system operates as an image reading system.

25     8. The system according to claim 1, wherein an image  
forming unit is connected as the image input/output unit

and the system operates as an image forming system.

9. The system according to claim 1, wherein an image reading unit and an image forming unit are connected as the image input/output units and the system functions as an image input/output system.

10. The system according to claim 1, wherein start-stop synchronization serial communication means is used as said communication means, a serial communication controller and a DMA controller are combined as said communication control means, the DMA controller transfers data by the fixed-length packets in accordance with a data transfer request from said serial communication controller and interrupts said image control unit when transfer of the fixed-length packet is completed.

11. A system constructed by combining a plurality of devices and connecting them by communication means, wherein a first device has first communication control means connected to said communication means, a second device has second communication control means connected to said communication means, and the system further includes control means for performing control so as to set predetermined communication conditions in said first and second communication control means at initialization, decide fixed packet length based upon mutually communicable packet lengths of packets

exchanged via said communication means, set the decided fixed packet length in said first and second communication control means anew, and continue subsequent communication.

5 12. The system according to claim 11, wherein in a case where a data string is a variable-length message, said control means performs control in such a manner that a transmitting side adds information indicative of the end of a message onto a final packet when the variable-  
10 length message is transmitted upon being divided into fixed-length packets, and a receiving side reproduces the original variable-length message after recognizing added-on final-packet information.

13. A data communication method in an image processing  
15 system comprising a combination of an image control unit and one or a plurality of image input/output units, said image input/output unit and said image control unit being connected by communication means, wherein in a case where said image control unit has first  
20 communication control means connected to said communication means and said image input/output unit has second communication control means connected to said communication means, said method comprises:

an initial communication conditions setting step of  
25 setting predetermined communication conditions in the first and second communication control means at

initialization;

a fixed packet length deciding step of deciding fixed packet length based upon mutually communicable packet lengths of packets exchanged via the

5 communication means; and

a fixed packet length setting step of setting the decided fixed packet length in the first and second communication control means anew and continuing subsequent communication by DMA transfer in which a data  
10 string is divided into the set fixed packet lengths.

14. The method according to claim 13, wherein in the fixed-packet length deciding step, the fixed packet length decided upon is whichever of the packet lengths of respective ones of the first and second communication  
15 control means is smaller than an upper-limit value.

15. The method according to claim 13, wherein after the fixed packet length has been set anew, communication is resumed upon elapse of a predetermined period of time.

16. The method according to claim 13, wherein start-  
20 stop synchronization serial communication means is used as said communication means, a serial communication controller and a DMA controller are combined as said communication control means, the DMA controller transfers data by the fixed-length packets in accordance  
25 with a data transfer request from said serial communication controller and interrupts said image

control unit when transfer of the fixed-length packet is completed.

17. A data communication method in a system constructed by combining a plurality of devices and connecting them  
5 by communication means, wherein in a case a first device has first communication control means connected to said communication means and a second device has second communication control means connected to said communication means, said method comprises the steps of:

10        setting predetermined communication conditions in the first and second communication control means at initialization;

          deciding fixed packet length based upon mutually communicable packet lengths of packets exchanged via the  
15 communication means; and

          setting the decided fixed packet length in the first and second communication control means anew and continuing subsequent communication.

18. The method according to claim 17, wherein in a case  
20 where a data string is a variable-length message, a transmitting side adds information indicative of the end of a message onto a final packet when the variable-length message is transmitted upon being divided into fixed-length packets, and a receiving side reproduces  
25 the original variable-length message after recognizing added-on final-packet information.

19. A storage medium storing a computer-readable communication control program of an image processing system comprising a combination of an image control unit and one or a plurality of image input/output units, the  
5 image input/output unit and the image control unit being connected by communication means, wherein in a case where said image control unit has first communication control means connected to said communication means and said image input/output unit has second communication  
10 control means connected to said communication means, said communication control program includes:

an initial communication conditions setting step of setting predetermined communication conditions in the first and second communication control means at  
15 initialization;

a fixed packet length deciding step of deciding fixed packet length based upon mutually communicable packet lengths of packets exchanged via the communication means; and

20 a fixed packet length setting step of setting the decided fixed packet length in the first and second communication control means anew and continuing subsequent communication by DMA transfer in which a data string is divided into the set fixed packet lengths.

25 20. The storage medium according to claim 19, wherein the communication control program includes a program in

said image control unit executed by a first control unit  
for controlling said first communication control means,  
and a program in said image input/output unit executed  
by a second control unit for controlling said second  
5 communication control means.

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